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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/800,763

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Chang Su Ryu

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04/27/2006

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EXAMINER

BAXTER, ZOE E

ART UNIT

PAPER NUMBER

3735

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/800,763

Applicant(s)

RYU ET AL.

Examiner

Zoe E. Baxter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 12-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/16/2004, 12/7/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The Information Disclosure Statements (IDS) submitted on March 16, 2004 and December 7, 2005 is acknowledged. Since the Information Disclosure Statements comply with 37 CFR 1.97 and 37 CFR 1.98 the references submitted there in have been considered.

### ***Claim Rejections - 35 USC § 101***

2. Claims 3 and 4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are referring an electrode at a left frontal area of the user, claiming a part of the human body is non-statutory subject matter. This claim could be rephrased to state that the electrode is adapted to be worn on the left frontal area of a head.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1-2, 5-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Mitra et al (US Patent No. 6,615,076 B2).

5. Referring to claim 1 Mitra et al. discloses a neural prosthetic system in figure 1, which incorporates a brainwave detecting portion(804) for detecting the brainwaves of the user as described in column 4 lines 43-49, an amplifying portion(806) for amplifying the detected brainwave described in column 5 lines 15-16, an A/D converting portion(808) for converting the amplified brainwave to a digital output and a "recognizer" portion consisting of a signal processor(810) and a decoder(812). It is disclosed in column 7 lines 43-46 that the decoder may decode intentions using the gamma frequency band.

6. Referring to claim 2 Mitra et al. discloses a control portion of the apparatus (820) as discussed in column 8 lines 17-19 the control portion receives signals from the device decoder and transmits signals to a peripheral output device so as to control the peripheral output.

Claim 5 states a method for detecting a brainwave, receiving and amplifying the detected brainwave, converting the amplified analog brainwave to one of digital type these features are described by Mitra et al. in column 5 lines 15-17 and in column 3 lines 22-23 it is disclosed that intention can be recognized by detecting changes in the gamma wave of the brainwave.

Claim 6 states a method further comprising a step of controlling a peripheral output device in response to an intention recognized in the recognizing step. Mitra et al. discloses a step of controlling a peripheral output device in response to the intention

once it is decoded by the decoder and the signal is sent to the controller to be transmitted to a peripheral device, column 8 lines 13-18.

Claim 7 states a method wherein the recognition of the intention is performed such that the fine change of an output of each frequency within a gamma wave band is sensed Mitra et al. state in column 3 lines 22-23 that a change in the gamma wave can be used for the recognition of an intention.

Claim 8 states a method of recognition including receiving a digital brainwave, calculating the fine change of frequency in the gamma wave band and determining the intention in response to the fine change. Mitra et al. column 7 lines 13-23 discloses a step of receiving a digital type brainwave, calculating the change in the brainwave and determining the intention in response to the change.

Claim 9 states that the recognition of intention is performed such that the fine change of an output of each frequency is sensed within the gamma wave band. Mitra et al. column 3 lines 22-23 discloses a method of recognition such that a fine change of the gamma wave can be interpreted as an intention.

Claim 10 states that the gamma wave is in the range of 32 Hz to 40 Hz Mitra et al. states the gamma wave frequency is 25 Hz to 90 Hz, column 7 line 45, a range which is inclusive of that being claimed.

Claim 11 states states a method of recognition including receiving a digital brainwave, calculating the fine change of frequency in the gamma wave band and determining the intention in response to the fine change. Mitra et al. column 7 lines 13-23

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discloses a step of receiving a digital type brainwave, calculating the change in the brainwave and determining the intention in response to the change.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 and 4 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mitra et al. as applied to claims 1 and 2 above, and further in view of Junker (US Patent No. 5,692,517).

The examiner notes that the electrode of Mitra et al. is capable of placement anywhere, including the left frontal area. Hence, it meets the claim language. Alternatively, Junker shows using external electrodes to monitor brainwaves to be old in the electroencephalographic (EEG) art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicants invention to modify the neural prosthetic of Mitra et al. by using an external biopotential sensor as taught by Junker so the user does not have the expense and risk of complications of having a sensor placed internally in the head.

***Allowable Subject Matter***

9. Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 12 defines over the art because none of the art define a fine change as  $[P(\text{first frequency}) - P(\text{second frequency})] / [P(\text{first frequency}) + P(\text{second frequency})]$  or  $P(\text{first frequency}) / [P(\text{first frequency}) + P(\text{second frequency})]$  and the frequencies are ones of the gamma wave band.

10. Claim 13 defines over the art because none of the art defines a step of determination to include determining that the intention is present when two peaks higher than a first determined threshold value are present and that the intention is not present when the two peaks are not present and a step of comparing a second predetermined threshold value with a distance between the two peaks.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zoe E. Baxter whose telephone number is 571-272-8964. The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zoe E. Baxter  
Examiner  
Art Unit 3736

ZEB

  
ROBERT L. NASSER  
PRIMARY EXAMINER